

AMENDMENT TO CLAIMS

Claim 1. (Currently amended) An isolated nucleic acid sequence encoding *Arthrobacter hsp70* protein, or a fragment thereof.

Claim 2. (Currently amended) [[An]] The isolated [[hsp70]] nucleic acid sequence according to claim 1 wherein said nucleic acid sequence is isolated from which is from the *Arthrobacter* strain deposited under accession number ATCC 55921.

Claim 3. (Currently amended) An isolated nucleic acid sequence comprising the nucleic acid sequence of SEQ ID NO:1, or a fragment thereof which encodes amino acid 162 to 365 of Hsp70, or a sequence having at least 85% homology thereto, or a sequence which under stringent conditions hybridizes with the sequence of SEQ ID NO:1.

Claim 4. (Currently amended) A chimeric nucleic acid sequence comprising the isolated nucleic acid sequence of any of claims 1 to 3 Claim 3 fused in-frame to a heterologous coding sequence.

Claim 5. (Currently amended) A chimeric nucleic acid sequence according to claim 4, wherein said heterologous coding sequence encodes an antigen from an animal pathogen from the group consisting of bacteria, virus, fungus, protozoa, nematode, tumor, and a combination thereof.

Claim 6. (Original) A chimeric nucleic acid sequence according to claim 5, wherein said antigen is IPNV VP2 or VP3.

Claim 7. (Currently amended) A DNA expression vector comprising the nucleic acid sequence of any of claims 1 to 6 Claim 3, wherein said nucleic acid sequence is operably linked to a transcriptional regulatory sequence.

Claim 8. (Original) A host cell transformed with the DNA expression vector of claim 7.

Claim 9. (Currently amended) An isolated *Arthrobacter hsp70* amino acid sequence, or a fragment thereof.

Claim 10. (Currently amended) [[An]] The isolated hsp70 amino acid sequence according to claim 9 wherein said nucleic acid sequence is isolated from which is from the *Arthrobacter* strain deposited under accession number ATCC 55921.

Claim 11. (Currently amended) An isolated amino acid sequence comprising the amino acid sequence of SEQ ID NO:2, or an immunogenic fragment thereof; or the sequence from amino acid 162 to 365 thereof; or a sequence having at least 85% homology thereto; or a derivative thereof.

Claim 12. (Currently amended) [[An]] The amino acid sequence according to any of claims 9 to 11 of Claim 11 which is covalently or non-covalently linked to a heterologous molecule to form a conjugate molecule.

Claim 13. (Original) An amino acid sequence according to claim 12 wherein said conjugate molecule is a fusion protein.

Claim 14. (Currently amended) An amino acid sequence according to claim 12 or claim 13 wherein said heterologous molecule is an antigen from the group consisting of bacteria, virus, fungus, protozoa, nematode, tumor, and a combination thereof, selected from bacterial, viral, fungal, protozoan, nematode and tumour antigens.

Claim 15. (Currently amended) An amino acid sequence according to claim 14 wherein said antigen is any of the following proteins from ISAV: a ISAV protein selected from the group consisting of nucleocapsid protein; hemagglutinin; polymerase; segment 7 P4 protein; segment 7 P5 protein; and a combination thereof, and segment 7 P4 and P5 proteins.

Claim 16. (Currently amended) An isolated amino acid sequence encoded by the nucleic acid molecule of Claim 3 any of claims 1 to 6.

Claim 17. (Currently amended) An isolated nucleic acid molecule encoding the isolated amino acid sequence of Claim 11 any of claims 9 to 15.

Claim 18. (Currently amended) A vaccine composition comprising the nucleic acid molecule of any of claims 1 to 6, or the DNA expression vector of claim 7, or the amino acid sequence of any of claims 9 to 15, or an Arthrobacter cell extract enriched in hsp70, and a pharmaceutically acceptable carrier, recombinant Arthrobacter Hsp70.

Claim 19. (Currently amended) [[A]] The vaccine composition according to claim 18 further comprising at least one heterologous antigen or a nucleic acid sequence encoding a heterologous antigen, an antigen wherein said antigen is from the group consisting of bacteria, virus, fungus, protozoa, nematode, tumor, and a combination thereof.

Claim 20. (Original) A kit comprising a vaccine composition according to claim 18 and a heterologous antigen or a nucleic acid sequence encoding a heterologous antigen, for separate, sequential or simultaneous administration, wherein said an antigen is selected from the group consisting of bacteria, virus, fungus, protozoa, nematode, tumor, and a combination thereof.

Claim 21. (Cancelled)

Claim 22. (Currently amended) A method of adjuvanting a vaccine comprising mixing a vaccine antigen with an amino acid sequence ~~according to any of claims 9 to 11 of Claim 11.~~

Claim 23. (Currently amended) An antibody raised against the amino acid sequence of ~~any of claims 9 to 15~~ Claim 11.

Claims 24-30. (Cancelled)

Claim 31. (New) A vaccine composition comprising the DNA expression vector of Claim 7 and pharmaceutically acceptable carrier.

Claim 32. (New) The vaccine composition of Claim 31 wherein said DNA expression vector further comprises a heterologous coding sequence encoding an antigen wherein said coding sequence is operatively linked to said nucleic acid sequence of Claim 3 and wherein said antigen is from the group consisting of bacteria, virus, fungus, protozoa, nematode, tumor, and a combination thereof.

Claim 33. (New) A method of preventing a disease in fish comprising administering to said fish the vaccine composition of Claim 32.

Claim 34. (New) A method of preventing a disease in fish comprising administered to said fish the vaccine composition of Claim 19.